

CLAIMS

What is claimed is:

1. A drug delivery system comprising:
5 a micelle comprising polyethylene glycol and a lipid component; and
a pharmaceutical agent dispersed in said lipid component.
2. The system of claim 1, wherein said pharmaceutical agent is
10 selected from the group consisting of anti-inflammatory agents, imaging agents, agents for photodynamic therapy, anti-tumor agents, anti-neoplastic agents, anti-metastatic agents, and hydrophobized derivatives thereof.
- 15 3. The system of claim 1, wherein said pharmaceutical agent is selected from the group consisting of porphyrin, chlorine-6-trimethyl ester, tamoxifen, paclitaxel, 1,3-bis (2-chloroethyl)-1-nitrosourea, camptothecin, ellipticine, rhodamine, dequalinium, diphenylhexatriene, vitamin K3, diethylene triamine pentaacetic
20 acid and functional derivatives thereof.
4. The system of claim 1, wherein said polyethylene glycol has a molecular weight between 500 and 10,000 daltons.
- 25 5. The system of claim 1, wherein said polyethylene glycol has a molecular weight between 1,000 to 8,000 daltons.
6. The system of claim 1, wherein said lipid is a diacyllipid.
- 30 7. The system of claim 6, wherein said diacyllipid is phosphatidylethanolamine.

8. The system of claim 1, wherein said micelle has a diameter in the range of 5 to 100 nm.

9. The system of claim 1, further comprising a targeting ligand attached to said micelle.

10. A drug delivery system comprising:

a micelle comprising polyethylene glycol and a lipid component;

a targeting ligand; and

a pharmaceutical agent dispersed in said lipid component.

11. The system of claim 10, wherein said pharmaceutical agent is selected from the group consisting of porphyrin, chlorine-6-trimethyl ester, tamoxifen, paclitaxel, 1,3-bis (2-chloroethyl)-1-nitrosourea, camptothecin, ellipticine, rhodamine, dequalinium, diphenylhexatriene, vitamin K3, diethylene triamine pentaacetic acid and functional derivatives thereof.

12. The system of claim 10, wherein said polyethylene glycol has a molecular weight between 1,000 and 8,000 daltons.

13. The system of claim 10, wherein said lipid is a diacyllipid.

14. The system of claim 13, wherein said diacyllipid is phosphatidylethanolamine.

15. The system of claim 10, wherein said targeting ligand is selected from the group consisting of a peptide; protein; enzyme; lectin; biotin; avidin; mono-, oligo, and polysaccharide; hormone; cytokine; and polyclonal and monoclonal antibody, including fragments thereof.

16. The system of claim 10, wherein said targeting ligand is selected from the group consisting of 2C5 antibody and 2G4 antibody.

5 17. A method of administering a targeted pharmaceutical agent to a patient, said method comprising the steps of:

a. providing the drug delivery system of claim 10; and

10 b. administering to a patient a therapeutically effective amount of said system, whereby said system is delivered to an affected tissue or organ of said patient, thereby enhancing the efficacy of said pharmaceutical agent.

18. The method of claim 17, wherein said pharmaceutical agent is selected from the group consisting of anti-inflammatory agents,
15 imaging agents, agents for photodynamic therapy, anti-tumor agents, anti-neoplastic agents, anti-metastatic agents and hydrophobized derivatives thereof.

19. The method of claim 17, wherein said pharmaceutical agent is
20 selected from the group consisting of porphyrin, chlorine-6-trimethyl ester, tamoxifen, paclitaxel, 1,3-bis (2-chloroethyl)-1-nitrosourea, camptothecin, ellipticine, rhodamine, dequalinium, diphenylhexatriene, vitamin K3, diethylene triamine pentaacetic acid and functional derivatives thereof.

25 20. A method of administering a pharmaceutical agent to a patient, said method comprising the steps of:

a. providing the drug delivery system of claim 1; and

30 b. administering to a patient, systemically or locally, a therapeutically effective amount of said system, thereby enhancing the efficacy of said pharmaceutical agent.

21. The method of claim 20, wherein said pharmaceutical agent is selected from the group consisting of anti-inflammatory agents, imaging agents, agents for photodynamic therapy, anti-tumor agents, anti-neoplastic agents, anti-metastatic agents and
5 hydrophobized derivatives thereof.

22. The method of claim 20, wherein said pharmaceutical agent is selected from the group consisting of porphyrin, chlorine-6-trimethyl ester, tamoxifen, paclitaxel, 1,3-bis (2-chloroethyl)-1-
10 nitrosourea, camptothecin, ellipticine, rhodamine, dequalinium, diphenylhexatriene, vitamin K3, diethylene triamine pentaacetic acid and functional derivatives thereof.